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THE GEOGRAPHIC STORY OF KASKASKIA

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THE story of Kaskaskia has been many time retold. Its rise from a small Indian village to a center of political and social activity, its long decline and the final extinction of the very site make a narrative that holds the attention and excites the imagination. As a type of many towns in a similar situation and an illustration of common activities characteristic of graded rivers, the story of Kaskaskia is of high geographic interest.

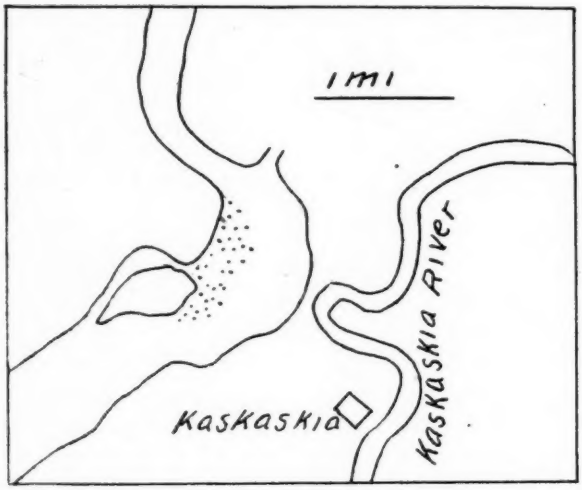
As one stands on the bluffs overlooking the Mississippi in its middle course he sees a steep walled trench in places two hundred feet deep and several miles wide. The trench is floored by a flat plain through which the great river winds. The meandering river, here eroding the incoherent materials of its flood plain and there depositing them, is a typical graded stream. At one place, the river may touch the enclosing limestone bluffs and again it swings through its flood plain.

Where the river swings in a meander, the observer will note the low cliffs where the river is eroding on the outer and downstream side of the meander. Often while the eye is resting upon it, a part of the flood plain in this situation will be seen to fall into the rapid, muddy water. Across the stream from this zone of erosion are sand flats, often overgrown with willows. Here on the inner side of the meander the stream is depositing.

It was upon this flood plain in southwestern Illinois that the Indians built one of their towns at which the French in the latter part of the seventeenth century established the trading

post of Kaskaskia, the first permaent white settlement in this part of the Mississippi valley. Kaskaskia was situated on a peninsula between the Mississippi and Kaskaskia (Okaw) Rivers.

Such a location was rather typical of the French posts and indeed of most of the early settlements along the graded portions of the Mississippi-Missouri River. The settlers had but vague ideas of founding permanent towns and the selection of proper sites. The locations were chosen with respect to easy access to the river and the adjoining fertile, alluvial fields. Often

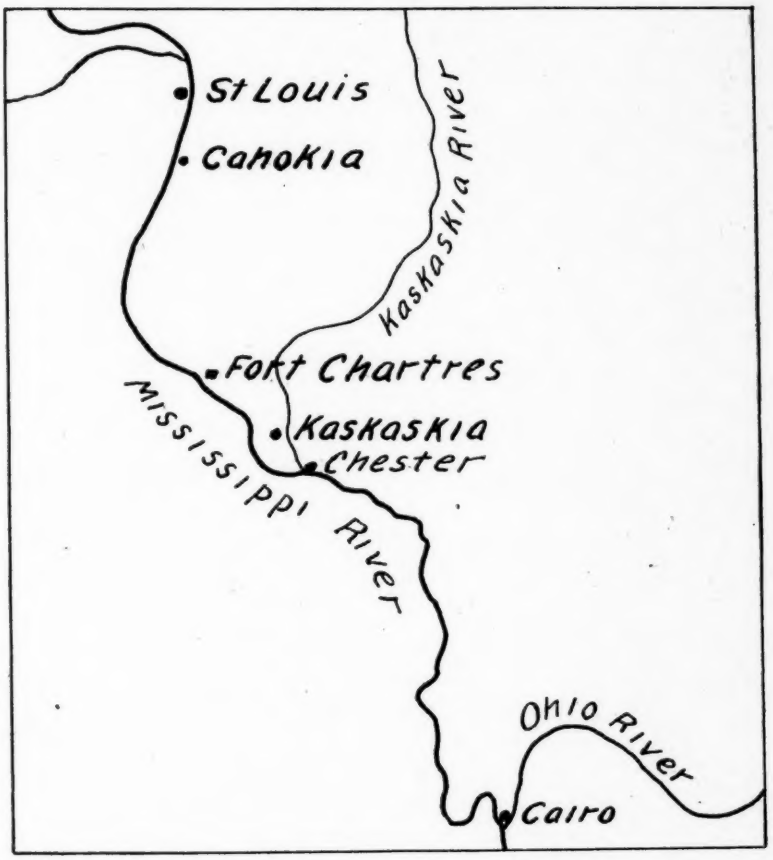


Map showing the action of the Mississippi near Kaskaskia. The dotted area, now covered by sand, was formerly in the channel of the river. From sheet No. 5 of the Survey of the Mississippi River, made 1870–1878.

the sites of Indian villages, around which were cleared areas, were utilized by the pioneers. Many of the settlers of French extraction were descended from emigrants from northwestern France. Neither these nor the English speaking settlers were accustomed to the habits of a large graded river. The sudden and extensive floods and the rapid erosion of portions of the flood plain were occurrences for which the previous experiences of the settlers had not prepared them.

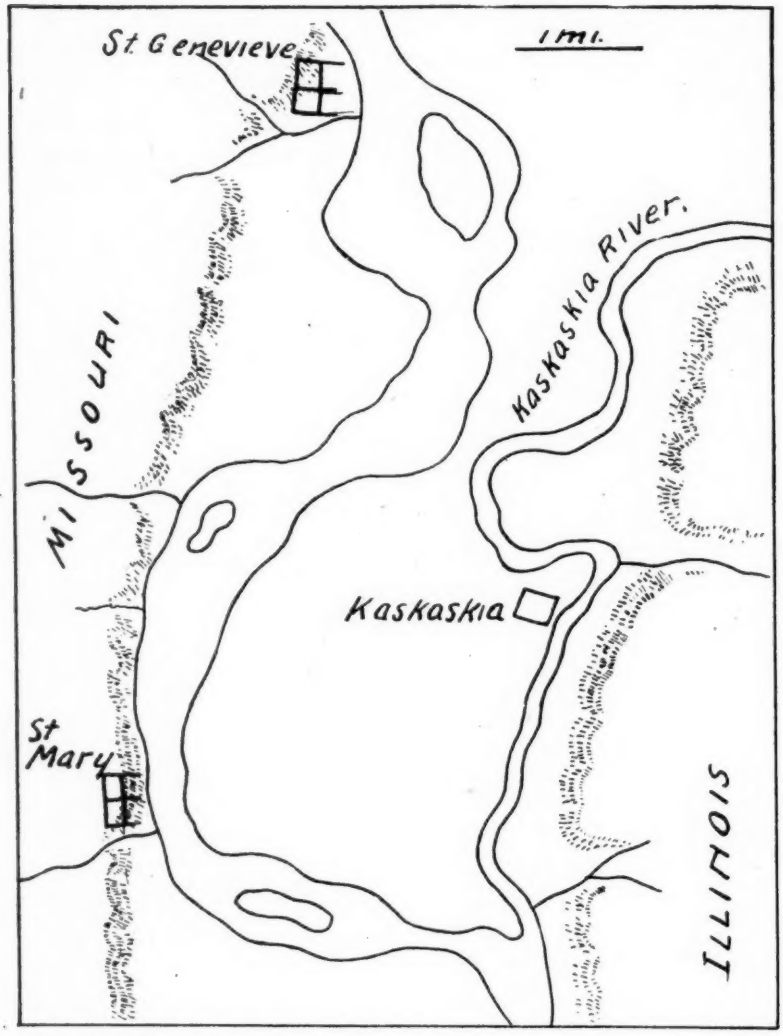
The proper geographic response, therefore, of the settlers along the graded river had to be learned by costly experience. It was not until many flood plain towns had been destroyed or

made untenable that the principal towns were located on the bluffs where the river swings against the bluffs. Here the towns were safe from floods and erosion while the deep water was convenient for navigation.

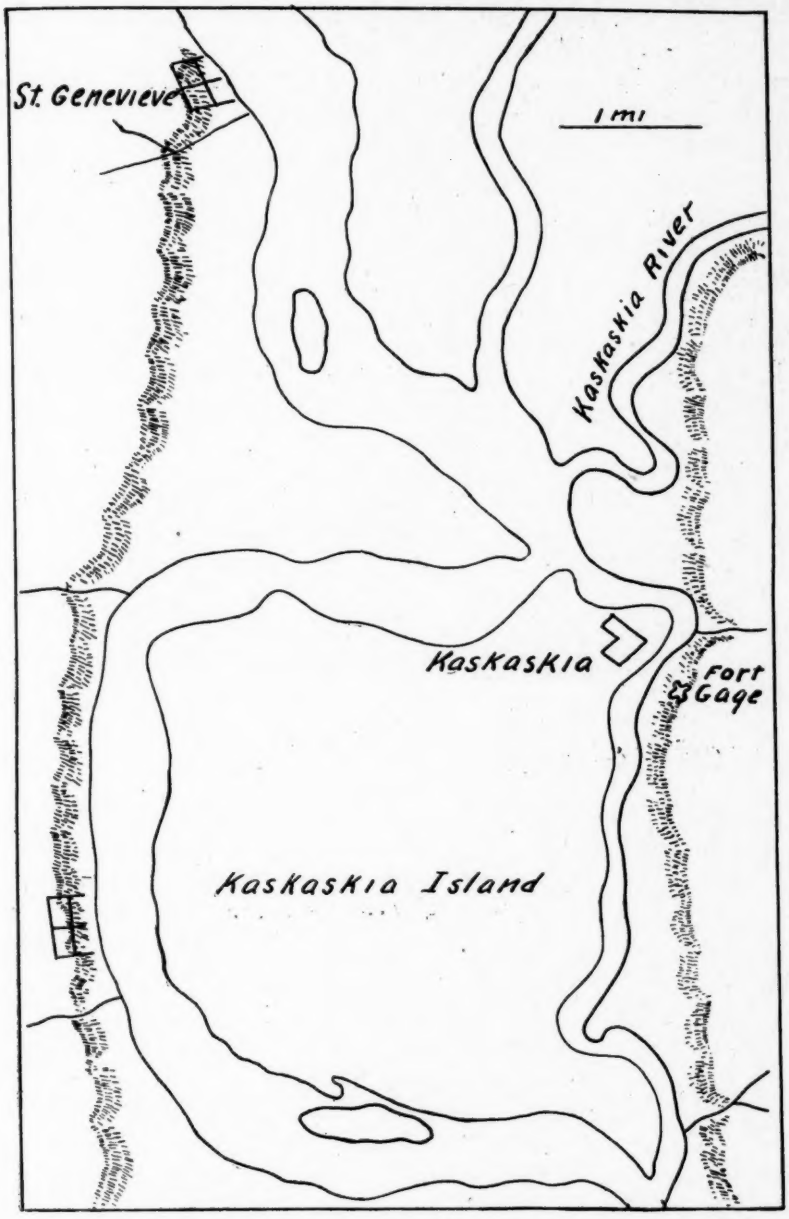


Map showing the general location of Kaskaskia.

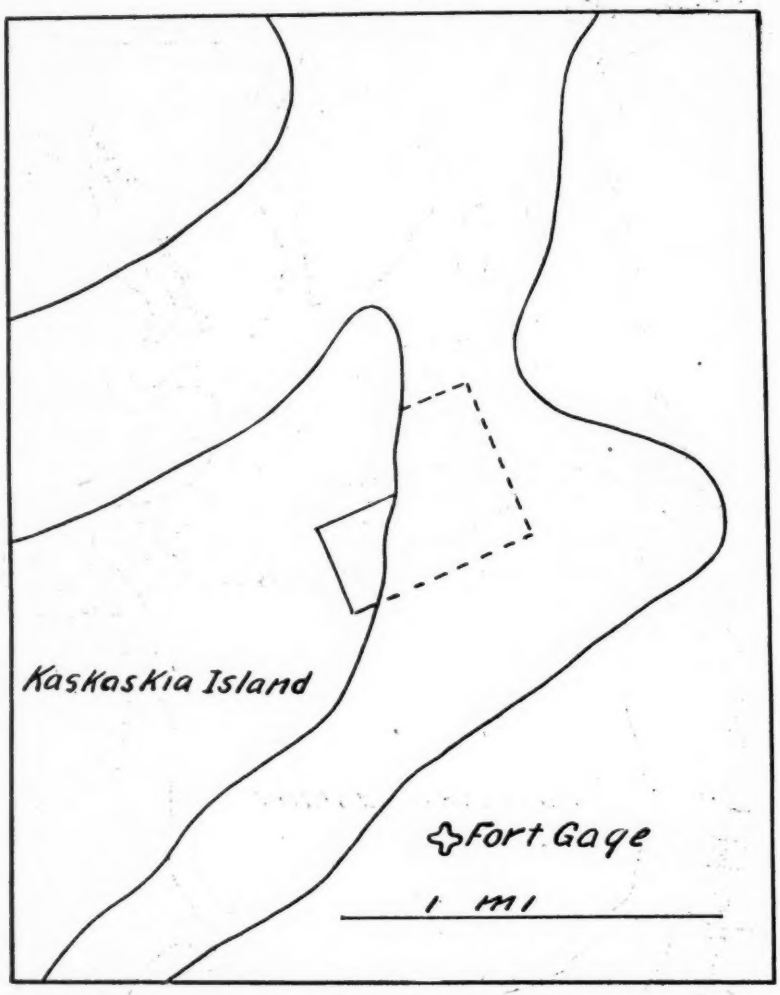
Among the earliest preserved documents relating to Kaskaskia is a petition to the King of France for protection of some sort against the recurring floods of the Mississippi. Nevertheless the town grew and became the center for French administration in the middle Mississippi valley. The fertile flood



The Kaskaskia region about 1878 before the union of the two rivers. From Chart No. 5 of the Survey of the Mississippi River, 1870–1878.



The Mississippi River shortly after the union with the Kaskaskia. From Chart No. 110 of the Mississippi River Commission.



Vicinity of Kaskaskia in 1900. The former site, now submerged, is indicated by dotted lines. From drawings by the Engineer's Office of the War Department, St Louis.

plain produced a surplus of products which together with furs collected from the uplands, were shipped to New Orleans. Considerable wealth was accumulated and Kaskaskia became the "Paris of the west." Under English rule the local capital was here and from 1809 to 1818 Kaskaskia was the capital of Illinois. In 1825 the town was of enough importance to be visited by Lafayette in his tour of the United States.

However, with the rapid settlement of Illinois and Missouri, Kaskaskia began to decline both absolutely and relatively. Aside from its undesirable site, there were no geographic or commercial factors that would tend to concentrate trade or population at that point. While the position near the confluence of the Mississippi and Kaskaskia Rivers was of some advantage,

View of the site of Kaskaskia from Fort Gage. The point at the right is all that is left of the site. The site of the town proper is beneath the river in the right middle ground.

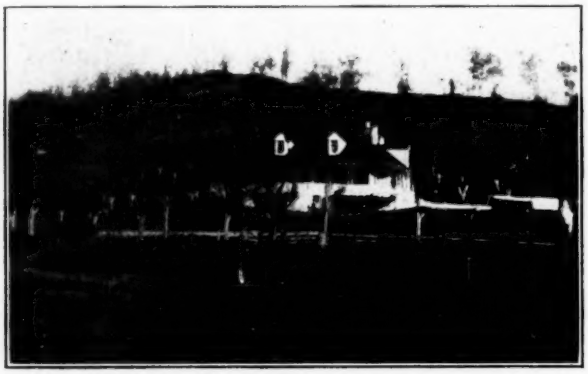
the small traffic down the latter was destined for points further south. Moreover, whatever advantages would result from such a position were gathered by the growing town of Chester, a few miles below, which was located nearer the confluence and was built upon the bluffs where it was safe from floods and erosion.

When railroads were built Kaskaskia was passed by, although railroads pass along both sides of the valley. The agricultural products of the small flood plain hinterland of the town were not important enough to tempt capital to bridge the river and build the railroad upon the flood plain. Moreover, these products could easily find river shipment to market.

Finally there was the impending danger from river plantation, of which the people had been conscious from an early period. In 1765, Capt. Pittman of the English Royal Engineers prophe-

sied the final fate of the town and correctly estimated to within a few years its ultimate destruction. Again Fort Chartres, an elaborate fortification which was built in 1756 on the flood plain a few miles above Kaskaskia, was destroyed by the river in 1772. It will be noted that, in this locality, the Mississippi makes a long bend to the east. Following the usual behavior, the river kept slowly advancing towards Kaskaskia.

In April, 1881, the lateral movement had proceeded so far that the Mississippi cut through the peninsula above Kaskasia changing the peninsula into an island. A considerable pro-



Fort Gage from the river. The fort is on the highest point of the bluff. To the left of the fort is the cemetery to which the old Kaskaskia Cemetery was removed. In the foreground is the residence of Pierre Menard, one of the prominent citizens of old Kaskaskia.

portion of the Mississippi current flowed down the Kaskaskia, thus augmenting the flow of the latter and increasing its erosion. The process, once started, continued and the northern end of Kaskaskia Island began to crumble into the river. It was not long before the northern part of the town site began to fall into the river. The better buildings were removed. The parish church was moved across the river into Missouri. The old records were shifted to Chester which had become the county seat. The less valuable buildings, many of them with the most interesting associations, were left to go into the river. When the current began to encroach on the old cemetery, the legis-

lature of Illinois appropriated $50,000 for its removal to the bluff across the Kaskaskia and the erection of a suitable monument.

And now the visitor looking from the bluffs at Fort Gage sees the truncated northern end of Kaskaskia Island and the site of the old town is covered either by the swirling water or by the sands deposited after the former site was eroded. Only a few

House in which the first legislature of Illinois met. Shortly after the photograph was taken, the building tumbled into the river Photograph taken May 12, 1900, by Dr. H. C. Zilliken, Chester, Ill.

cellars in what were the southern outskirts of Kaskaskia are left of the former "Paris of the west."

This story of the Kaskaskia is retold with its geographic setting because it is illustrative of so many flood plain towns in the Mississippi-Missouri valley. Not all were swept away by the lateral movement of the meanders. Some were drowned out; others were deserted by the river and left several miles inland; many other proved to be so malarial because of the level, undrained flood plain that they were abandoned. They were erroneous geographic responses to the large graded river.

GEOGRAPHY IN RURAL SCHOOLS*

By Richard Elwood Dodge

AS a rule most of the courses of study and the other educational guides available for geography teachers have been prepared for city school systems, with little thought of their adaptability to the conditions pertaining in rural communities. The recent interest in this country in the improvement of rural education has caused many a teacher and leader in various subjects to consider seriously and possibly for the first time how far the ways of handling his subject, which he has learned and practiced amid urban conditions, is really adapted to the conditions in rural communities. Geography has suffered very much in the past because of this one-sided viewpoint, in spite of the fact that many of the topics usually included in geography courses are specially fitted to be taught better in rural than urban communities.

Even teachers brought up in the country and perhaps never familiar with other than rural conditions have failed to see the opportunities in geography teaching that surrounded them. This has been largely because their attention has never been called to such opportunities or because, in their subservience to authority, they have concluded that what was not definitely included in their texts and courses of study was thereby distinctly tabooed as out of place, unscientific or " unpedagogical."

Yet, as a matter of fact, geography has always been particularly well adapted to be taught better in the country than in the city schools. Even though it were the old-fashioned type of geography which called for definitions of objects and not the relation between life and the earth, where could rivers, hills, divides and similar items be better taught than in a rural region where these natural features were unobscured by man-made inventions like sewers, pavements, concentrated city blocks, etc.? The country boy who has roamed the hills and valleys about his home knows much from experience that is geographically worth while. It may not be set in the exact phrases of the text-book or course of study, but so much the better. Yet this information

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has not been brought out, analyzed, developed and classified or used as points of departure as it should have been.

The ordinary geography text or course of study does not as a rule need much, if any, change in order to be adapted to rural conditions. The great change should be one in the method of approach. In much of the introductory work, children can, in the rural schools, deal with things rather than with the representations of things as must be the case in many city schools. Hence observational work, which is vital in any real study of geography, can be pursued in rural regions as nowhere else. Yet, as a matter of fact, in great numbers of rural schools all the common terms and definitions used in the description of land and water forms are taught from books rather than things. The writer as a pupil in a small rural school played at recess and at noon in the neighboring stream, and the schoolhouse was cosily situated amid some striking land features, but these surroundings were never used in school work. Valleys were illustrated from pictures in the text and not from nature and the same thing was true of all the phenomena of the geography work. This failure of opportunity is not a question of one locality; it is widespread and persistent. The materials are available and not even a special course of the study is necessary to make it possible for teachers to use the features of their physical surroundings. The facts are too glaring and obvious to need any special attention in a course of study. Any observant teacher who is not bound by the pages of a text can readily use the local illustrations and should be made to realize that such a use is necessary to make any text materials meaningful and clear.

The local applications and illustrations of geography are not wholly confined to the physical features, however. The relations between the physical features and life conditions can be more easily observed in the country than in a city. The way streets and railroads are laid out; the relation of fields, orchards, pasture and waste land to slopes and soils; the relation of ground water to slopes, soils and crops; the reasons for location and growth of towns or villages; or for the location of manufacturing establishments; and many other social conditions can be readily studied. In certain parts of the country where farms are laid out in sections and quarter sections, the reasons for the boundaries can be understood only through showing the relations to

latitude and longitude lines, which of course are geographically determined. The relation of the use of machinery, of good roads, of modern conveniences for transportation and communication to surface features—all these and other similar topics valuable from the economic side, can be included to advantage.

Rural life is not merely a question of improved economic conditions, however, and no subject ought to be taught, in urban or rural localities, purely with a view to making a pupil a better wage earner, however important, practical and necessary such a purpose is. Rural life is more than a question of money making and rural education should not solely be framed "to keep the boy on the farm" by showing how he can get a better money return. Rural conditions are recognized by many people as the most pleasant and healthful for living, and living involves health and comfort as well as the seeking of property. Many of the topics studied in geography can readily be applied to good living, and comfort and health in many rural regions would be better secured if some of the simple principles of geography were followed in house building and location, for instance, as well as in many other ways. Some of the topics which may well be studied in detail and applied to rural conditions are indicated below. Obviously all localities are not alike in their offering of possibilities and hence a choice must be made that will fit the special conditions of any one region.

The most obvious features in any landscape are the slopes which are or ought to be considered in agriculture, in the choice of a site for a home, in the building of roads and in an infinite number of ways. Regions of gentle slope are often poorly drained naturally and hence the necessity of underground drainage; roads and railroads can run in almost any direction, though as a rule farms are laid out more regularly and roads are more systematically placed in regions of gentle slopes than in those of steep slopes. The ease of tilling gentle slopes, the strength of winds and the need for wind breaks in large regions of this type are facts familiar to all but often little appreciated.

In more rugged regions, we find, as a rule, the houses and tilled fields, the roads and railroads, concentrated on the more gentle slopes and the forests and pastures and waste lands, and in some cases the orchards, placed on the more irregular areas. Almost any country boy will be interested in making a simple

map of his home farm to show the relation of crops and usage to slopes; he will know the warm and the cold sections, the slopes where the early spring flowers are found and where the best fruit grows, just as he knows many other personal things that he has learned by experience and which illustrate geographical principles very readily if once his attention is called to them.

The soil is another topic that may be made the basis of some interesting lessons for children. The kinds of soil for corn, potatoes, cotton, wheat or fruit can be studied by samples or on the ground, and their relation to slope, to their ability to hold and to transmit water, and to the effects of drying and tilling may readily be shown. A large part of any farmer's work in the growing season is devoted to tilling his crops. Tillage or stirring the ground is a means not only of killing weeds but of keeping the soil thoroughly stirred so as to save the ground water that is constantly rising to the surface by capillary action. It is also a means of permitting rain to soak into the ground. It is distinctly related to the question of ground water and a farmer's boy who understands this has gained a point of information of great practical value. The reasons for mulching soil by plowing in straw or of covering orchards or fruit beds with straw are the same. Similarly the advantage of a grass cover in preventing a rapid run-off after a rain and of conserving the forests can be shown to be related to the question of ground water. In those regions where summer fallowing of fields or dry farming are followed, the same principle holds true.

Another topic that has its interest is the question of soil motion on hillsides. The movement of fences and stone walls down hill, the tilting of headstones in a cemetery or of the stone facings on sidewalks in some city streets are due to this creeping of the soil. Many of the repairs to fences that a farmer has to make in the spring are due to the movement of the soil, to the thrusting of the frost or in some sections to the glacierlike movement of the snow on hillsides—all topics that appeal to any country boy in regions where they occur.

The problem of drainage also has its geographic side which is interesting and the study of which will be helpful to almost any country bred child. The necessary amount of ground water for crops is a fundamental factor in agriculture and the conserving of this ground water is the essence of tillage, as has

already been indicated. Ground water feeds wells and a permanent well must be dug below the permanent level of ground water. Hence the reason for not digging wells on the tops of hills, as a rule. Ground water is lower in the ground in dry seasons than in wet. Hence it is not healthful to sit on the ground when the ground water level is high. Picnicking and camping out are not matters of temperature and rainfall only, but questions in part of the depth of ground water below the surface of the soil. Drainage is a matter of removing ground water and run-off in excess of the desired amount. Irrigation is the reverse—it is the problem of adding water to the soil where the ground water is permanently at a low level. On many farms in some sections of the country, irrigation would be as valuable in the summer as is drainage in the spring.

But drainage does not have to be taken into account only in the question of agriculture; it is or should be, in all rural regions, considered in reference to the location of buildings and wells. A study of local slopes and soils could readily be made in most rural regions in relation to drainage and water supply. A similar study of the relative locations of houses, stables and barns would be suggestive, helpful and practical in many localities. The necessity of protecting drinking water from contamination is one of the most important problems in many rural regions. It is a problem for the individual usually and many adults are ignorant or careless in reference to the matter. Hence the desirability of showing in geography the relations between hygienic living and the geographic features.

Drainage, however, is not merely a question of movement of surface or ground water. The hilltops in a rugged or rolling region may be more exposed to wind but they are warmer in the winter mornings than the lower valleys, just as they are in the evenings and nights in summer. The coolest air on fair nights is generally to be found in the low regions and hence the disadvantage of locating a home in the valley. This is not only true in the winter when the lower temperatures are in the valley but also in the summer when the night air is frequently too damp for comfort in valleys, while on the hills it is drier and more pleasant. Houses in deep valleys also have short winter days because the sun in its course is shut out by the surrounding hills. These valley shadows persist so long in the morning and the

sunset comes so early in the afternoon that the winter days are more dreary than they would be on the hillsides.

Thus the most favorable position for a home in a rolling or rugged region is on the mid-slopes, protected by the hills from the wind and yet above the cold night air of the valley bottoms. On the mid-slopes the cool air is experienced at night but it is not as a rule damp. The best position from the standpoint of geographic location in most of the eastern part of the country is a southwest slope facing the prevailing winds of summer and the strongest sunlight of winter. A good air drainage is as important as a good water drainage in house location, and problems of drainage are profitable phases of geography in rural school work.

Another topic that ought to be included in a course in geography for rural schools is the question of good roads. Good roads are not for the automobilist or the bicyclist or even primarily for him, though the present interest in good roads is to a large extent due to the initial action of rapid-travel enthusiasts. Good roads are for the farmer and for everyone who wishes to travel quickly from home to store, church, grange meeting or the neighbor's. Good roads are economically of great significance as they bring markets nearer to the farmers in time, reduce the cost of transportation of farm products, expedite the delivery of mail, reduce the wear and tear on horses and wagons and help in every way to reduce the isolation of rural life.

Hence children should study about roads, compare good roads with bad roads, learn the necessity of a well rounded road that sheds water and see its advantage over the not uncommon country road where the water after a rain runs in the horse track and where in spring the mud may make it well-nigh impassable. Good roads should be studied as a cause of better social and economic conditions and as an effect of the economic demand for quick transportation of crops to markets. They should be studied further in reference to the available road material, for in most localities a careful selection and use of the rocks and natural road materials near at hand would insure better roads than now exist. Experiments may be conducted in the schoolroom to show what kinds of material hold water and what drain readily; what readily pack under travel and what wear out or are easily worn into ruts. Compare the new material freshly put on a road as to fineness,

grittiness and general usefulness as a road material with the worn-out material to be found beside the road after a season's wear. Then draw conclusions as to the advisability of scraping such second-hand comminuted dust back into the road with any thought of its being useful for road purposes.

The question of our relations to climate and weather are fruitful topics for discussion of personal experiences in any part of the country. Some of the relations are indicated in the early portion of the chapter, but many more can be readily worked out by any teacher. The advantage of grass around houses as against a sandy or clay field is a topic that, rightly presented, would give many children an idea as to how to make their homes more inviting and pleasant. Grass ground is cooler than ground with no vegetation covering it, and hence the nearby house is cooler in summer. Also, the rays of heat and light are reflected more or less from bare ground and the house gets both direct and reflected heat. From these two standpoints, as well as from the standpoint of freedom from dust and as being more homelike and attractive, the advantage of grass about a house or school house can well be presented.

The use of wind breaks in prairie regions, the advantages and disadvantages of windmills as a source of power, lead to a study of the average velocity of the wind in the area and to its economic importance.

The way houses are built to withstand cold or heat, the type of roof used to shed water, the use that is made of local materials in house building, the general direction that cowsheds face in winter, the best situation for hen houses, the direction that rows of vegetables should be planted in the garden to secure the sunlight most evenly, the color and character of clothing used in the several seasons, to say nothing of the ever interesting seasonal games of the boys and girls, are a few among the many topics that may profitably be considered in any rural community.

If the teacher can work out the conditions of soil, rainfall, sunlight, temperature, drainage, etc., that favor the success of any crops or industries particularly important in the locality, another large, vital and valuable field of interesting work can be opened up in which pupils will be intensely interested. Such topics tend to develop local patriotism and the love for the home locality and are well worth cultivating whenever it can be

done truthfully. The whole field of local customs and habits of seasonal dress, of seasonal variation of occupation and similar topics offer a host of interesting, valuable problems which can not be treated generally because they vary with any given locality.

As has been mentioned above, the study of rural life must be something more than the study of how to get more money out of the farms and local industries. It must be a study of how to get a better living in the broader sense, and the more each of the time-honored subjects can contribute to the development of this viewpoint, the better for the subject and the pupils. Geography is so personal to everyone that hardly a problem in life can be touched without touching the geographic background. If we are to lay the foundation in the elementary schools that will make boys and girls want to stay on the farms, we must not merely try to teach them to make more money, for then they will surely go to the cities. We must teach them the beauties, the wholesomeness and the advantages of rural life, make them acquire a love for the home region and an ability to make life more real, more interesting and more valuable as life, amid rural conditions. To this vast and almost untouched problem geography can contribute many helps and rural bred teachers, with the love for the soil, rightly taught and with a viewpoint that is not urban or ultra academic, can help enormously if they will but see the problems about them which have a basis in real, personal geography.

THE HIGHEST LAKE IN THE WORLD.—The recent volume of Sven Hedin describing his travels in Tibet gives an account of a lake between the Brahmaputra and the Indus that has the distinction of being the highest lake in the world. It is Lake Manasarowar and lies at a height of 15,098 feet, three thousand feet above Lake Titicaca in Bolivia, and higher than the highest summit in the Rocky Mountains.

NOTES

Syllabus of a Round Table Conference on the Organic Side of Geography, its Nature and Limits. Conducted by Albert Perry Brigham, Before the Association of American Geographers, Boston, 1909.

Introductory Considerations

1. To discuss the nature and limits of organic geography seems to require a definition of geography. Attempts to define may be confusing and unprofitable.

2. The topic concedes an inorganic side of geography which has the true quality of the science. Physical geography and organic geography, or physiography and ontography, are coordinate parts of geography.

3. Not inconsistently with the foregoing, the highest synthesis of material and the chief goal of study lie in the field of relation between the inorganic and the organic, and further between man and his total physical and living environment.

4. It will take long to delimit and systematize the material of geography and its full organization and definition will come gradually if at all, as the outcome of many attempts in its several fields.

5. Meanwhile there is enough ground for every ambitious geographer to cultivate, ground which otherwise will be neglected.

6. The aims in this discussion are therefore practical rather than theoretical. We should aim at the best available conception of the earth and its life which is possible to the present generation.

7. Such an attitude does not surrender fundamental problems as insoluble, but faces us most directly toward the broad and deep geographical philosophy which we desire for the future.

8. The rule of reserve and common sense in choice and treatment of topics does not bar out daring excursions for those who are able to make them.

Biological Geography

9. The factors of a plant habitat are all more or less geographical, but the investigation of some, such as light, pressure,

polarity and gravity, belongs in high degree to the expert in structural and physiological botany.

10. The relation of plants to other factors, as water, is of the highest importance to the geographer and offers a common field of investigation.

11. It makes small difference who does this work, and whether he is called a botanist, an ecologist, a geographer, a geographical botanist, or a botanical geographer.

12. In any case the results are available, both to the botanical expert and to the geographer for their special purposes.

13. The distribution of animals is zoö-geographical. The investigator may be a geographer or a zoölogist, or both combined.

14. Insect and germ life in relation to public health, both in tropical and temperate regions, requires medical, biological and geographic experience in the investigator. The subject therefore has a place in geographic investigation and education.

15. Animal life as related to agriculture and to food. Commercial geography should go further in recognizing advances in animal industry, and in taking account of importations, game protection and the control of disease.

16. The student who is more zoölogist and less geographer or more geographer and less zoölogist would be capable of certain work, but the investigator must have training in both fields.

Anthropo-Geography

17. The range of human sciences and arts to which geography may claim a working relation is debatable. We assume intersection of the circles of knowledge in such sciences as ethnology, history, economics and sociology. Psychology, the esthetic arts, literature and religion doubtless also offer common fields of investigation, but present work must be tentative.

18. Ethnology. Geographic work here can not be wholly ethnographic, that is, distributional and descriptive. Modern geography presses into the field of rational explanation.

19. History. Three types of view may be suggested (1) That environment is all-controlling. (2) That environment counts for little because the physical element dominates mankind after the primitive stages are past. (3) That environment is a strong

conditioning factor, to which influence is to be ascribed, a view well stated by Bryce. The entering of the volitional element does not destroy the geographer's function in historical study.

20. There is a generous overlap of geography and history and Ratzel's principle is applicable.—"The geographical conception of their surroundings and the historical consideration of their development will thus go hand in hand."

21. No line can be drawn as to the actual division of labor. Either geographer or historian may wander across the boundary according to bent or training. Certain topics belong clearly to one, and certain themes will be left to the other, but a large group of themes is mediate, offering ample room for geographer and historian to enrich each other's labors.

22. If geography is ever to push farther into the psychical-historical realm, it will then have demonstrated its right to be there, but this, so far as organized geography is concerned, is for the future.

23. Economics. Examination of standard texts for scope and content, shows that the field of commerce lies largely open to commercial geography. This is a field vast in range and as yet only partly tested for its educational and practical possibilities.

24. Sociology. If geography is basal to economics and belongs to the structure of history, it cannot escape a vital relation to the organization and manifestations of human society. A sample problem is cited from Ripley, having to do with certain social phenomena of France.

25. Technology. The place of practical arts in geography is illustrated, with iron and wheat as examples.

26. Most geographers have and must have their special centres in some field of physical or organic geography. Whether known by these special affiliations or as geographers, is not material, so long as they are willing to co-operate for a better understanding of the earth and its life.

27. Close dependence on the special sciences does not eliminate the geographer or geographic research. As well charge philosophy with being superficial because it aspires to unify and rationalize all knowledge.

28. Mature geography has before it ample tasks, whose legitimacy is unquestioned and the finding of the outmost bounds of the science may be awaited with patience.

A Useful Device for Teaching Geography.—One of the most useful devices for the teaching of geography, and one that seems to be less used than it deserves to be, is a large outline map of the country studied painted on the class-room blackboard. In many class-rooms, a portion of the board could easily be spared for this purpose, while in those in which no space could be set aside, it might be placed upon one of the cloth blackboards that can be rolled up and put away when not in use.

If the teacher has not enough confidence in his or her ability to draw such a map, there is an easy way out of the difficulty. If an ordinary wall-map of the needed country be taken and placed face down, the outline will usually show through. This may then be heavily traced with chalk, in no wise injuring the map. Then by placing the chalked back against the board and rubbing the surface, all the while holding the map firmly in place to prevent its slipping, the chalk will adhere to the board and furnish an accurate outline which may be painted white. If the outline does not show on the back, the map may be held against the window and the outline then traced.

The uses to which such a map may be put are too numerous to mention. It may, for example, be used by the teacher during the lesson in locating, as they are taken up, natural features, areas of production, or cities, or in tracing the courses of railroads or canals. Many other uses will doubtless suggest themselves to the teacher. Then, too, children may be sent to this map to locate any feature studied. If the map be accurately drawn great precision in locating various features, something which many believe to be sadly lacking to-day, may be developed (much more so than by allowing the pupils to draw their own maps). While its use will in large measure be similar to that of the so-called progressive maps, it will fulfill a requirement not filled by these, viz.—that of a map on which the teacher may place what is being taught or what has been taught. All in all, it has proved itself in use one of the most satisfactory of devices.

—*Edwin W. Humphreys.*

The Chaco of South America.—The Chaco of South America is the mysterious no-man's-land of early explorers. Into this wilderness fled the native inhabitants, called there "Indians," with the same idea of them that was current in North America,

and both fancy and experience peopled it with all manner of strange wild beasts. As the aborigines were driven farther inland by European settlement they were accompanied by the imported horses and cattle of the Old World which had run away from captivity and reverted therefore to the habits of their primitive ancestors. The limits of this region were rather climatic and geologic than territorial. The characteristics of soil and vegetation determined its location quite as much as anything else. Thus, in the early history of the Argentine nation, above the Salado River was "El Chaco." This extended indefinitely northward up to and within Bolivia. It crossed the Paraná River, embracing even portions of Uruguay and Brazil, and was lost in the unknown area at one time dominated by the Jesuit missions. Fugitives escaped into the Chaco, explorers lost their lives there or returned with wonderful tales of adventure. The Pilcomayo and Bermejo Rivers, leading to the northwest, lured many a hardy traveler to attempt, unsuccessfully, a new route toward the Inca land of Peru and Bolivia. At one time it all belonged vaguely to the Argentine Republic. Later Bolivia relinquished her use of the name, and, under the agreement in which President Hayes (1878) acted as the arbitrator, that portion not definitely within Uruguay and Brazil was divided between Paraguay and the Argentine Republic. To-day there are two Chacos, one belonging to Paraguay and the other to the Argentine Republic. Their limits are definitely fixed. In the Argentine Republic are the Gobermacion del Chaco, south of the Bermejo River, a national territory, north of which is the Territory of Formosa, whose northern boundary is the Pilcomayo River. North of the Pilcomayo is the Paraguayan Chaco, and the name covers only these two thinly inhabited areas. But "El Chaco" remained as romantic and unproductive as ever until the railroad came.

Railways must have sleepers on which to lay their rails. In some instances wooden ones are imported at great expense, or substitutes therefor are used if climatic conditions are favorable. As a rule, however, it is preferred to take supplies from native timber whenever procurable. This was the case in the Argentine Republic when railway building away from the coast had begun, and no more fitting wood could be discovered than that recommended by the natives, both by the name and by the experience of those who had used it. The quebracho wood proved by far

the most serviceable for sleepers on South American railways, and its reputation grew so steadily that to-day many miles of European rails are supported by sleepers brought from the River Plate. The railways helped also to industrialize this region, pushing their way close to the edge and occasionally into the Chaco; steamers and sailing vessels crept farther into the interior on the larger rivers, bringing manufactured goods from abroad in order to exchange them for cargoes of quebracho, until the mystery of the Chaco has now faded away before the march of civilization, while logging camps and sawmills are as busy there as they are in Wisconsin or Canada.

In one respect quebracho resembles rather mahogany than oak or pine. The trees do not grow in clumps or groves, but are dispersed through the forests and the less dense woods, singly or in groups seldom more than four or five to the acre. The tree itself is tall, about two or three feet in diameter, and is crowned by a rather thin, oval, or V-shaped, mass of branches and leaves. The white quebracho is somewhat smaller than the red, and begins to branch lower to the ground, so that it is not hard to distinguish them from each other. The leaves are oval, or lance shaped, smooth, somewhat shining and leathery; they do not fall completely in the winter, but cling to the branches in company with the fruit. The tree seems to thrive best on a sandy soil, where the atmospheric moisture is not very great, but where abundant water is provided for the roots, either by dews or sufficient rain. It is neither a mountain nor a river growth, but lives best in the subtropical stretches between water courses. Although the age of the tree has been given as measured by hundreds of years, it is well enough established that at ten years from planting the first small shrubs are big enough to use for posts. The future promises, therefore, an opportunity for the actual cultivation of quebracho because, although savage inroads have been made into the supposedly inexhaustible forests of the Chaco, it is not too late to restrict the cutting of the tree, or even to adopt modern forestry methods of planting and conservation for the supply of coming generations. In fact, the Argentine Republic has already passed suitable laws in this direction, and it is more than probable that under the wise administration of that Government, there will be developed an arboricultural industry to proceed hand in hand with the preparation of que-

bracho posts for fences and construction work, sleepers for railways, and of tanning extract, the three industries for which this unique tree is at present utilized.

—From *Bulletin of American Republics*, September, 1909.

ARGENTINE ENTERPRISE.—Argentina has for some years been a serious competitor of the United States and Russia in the wheat markets of the world, an interesting phase of the competition being indicated by the fact that since 1903 Argentine flour has practically driven out United States flour from southern Brazil. Over 74 per cent. of all Brazil's imports of flour come from Argentina, while only 16 per cent. come from this country. In addition, practically all the flour milled in Brazil is from wheat imported from Argentina. With the extension and early completion of the railway westward across the Andes, we may look for larger exports of flour to Chile, and even to Peru, *via* west coast steamers. There is room for 200,000,000 people in Argentina, where but 5,000,000 live to-day, and with the increased utilization of the land, Argentina's influence must spread over the southern two-thirds of the continent and in many markets become the dominating influence.

Already Argentina is second only to Australia in the number of sheep and third with respect to the United States and Russia in the number of both cattle and horses.

An interesting phase of industrial development in the River Plate region is the growing lack of laborers, due to the expansion of the lumber industry on the Paraná and Paraguay tributaries. Eight thousand to 10,000 men are now employed on the Paraná at Posadas for the up-river lumber business, but the wages are steadily increasing with increased difficulties in getting men. In the face of this condition, lumber is imported from the Gulf ports of the United States in growing quantities. Eight steamers have recently been chartered for the business and will ply between Mobile, New Orleans, etc., and ports on the Plate in Uruguay and Argentina.—From *Bulletin American Geographical Society*, November, 1909.